



Home Builders Association
of Metropolitan Portland

April 13, 2021

Mayor Lyles-Smith
Oregon City Commission
625 Center Street
Oregon City, OR 97045

Subject: Discussion Item 3: Proposed Amendments to Chapter 17.44 – Geologic Hazards

Dear Mayor Lyles-Smith and Commissioners:

The Home Builders Association of Metropolitan Portland (HBA) represents over 850 companies and tens of thousands of women and men who work in the residential building and remodeling industries throughout the greater Portland area. We work to promote housing affordability and are dedicated to maximizing housing choice for all who reside in the region.

Oregon City (“the City”) is pursuing excellence in its geologic hazard code. HBA recognizes the importance of comprehensive land use planning that accounts for safety while planning for housing, infrastructure and open space. This planning requires a combination of technology and on-the-ground assessment that together yield the most precise information for the City, existing residents and development community to use as they strive to shape a world-class community.

The statewide geologic mapping performed by Oregon Department of Geology and Mineral Industries (DOGAMI) is a valuable tool for determining risk to potential developments. However, this mapping is performed with limited ground-truthing in the field and is not a substitute for site specific geologic investigations. DOGAMI cautions the use of the mapping in Special Paper 42 Protocol for Inventory Mapping of Landslide Deposits from Light Detection and Ranging (lidar) Imagery, quoted below:

NOTICE

The Oregon Department of Geology and Mineral Industries is publishing this paper because the subject matter is consistent with the mission of the Department. The paper is not intended to be used for site specific planning. The protocol described in this paper cannot serve as a substitute for site-specific investigations by qualified practitioners. Site-specific data may give results that differ from those which would result from use of the protocol described in this paper. The hazards of an individual site should be assessed through geotechnical or engineering geology investigation by qualified practitioners.

If a site feature mapped by DOGAMI is not inherently stable, or cannot be stabilized, the likely approach is to limit or preclude development. HBA agrees with this approach. The best engineering practice to properly assess landslide hazards on a specific site is for the City to rigorously review geotechnical engineering or engineering geologic reports in suspected landslide areas, which Oregon

City is already doing. As such, the City should continue to use lidar imagery data in conjunction with the field assessments that are already part of the local land use planning process.

Regarding slope, HBA supports staff's recommendation to maintain currently codified slope threshold development criteria. Other factors professional geotechnical consultants take into account when analyzing landslide hazards in Oregon include underlying geologic formations, subsurface soil and groundwater conditions, and human activities. Given these factors can be stabilizing or destabilizing, field work analysis is necessary to form the recommended solutions for development in any given area.

Importantly, as indicated by professional experts, limiting site activities based on slope alone does not reduce development-related risk and could unnecessarily limit the City's own plans for community development. These plans including current and future civic space as well as current and future residential property development. Because slopes of all measurements are found within the geologic hazard code overlay, where development is already restricted, the City should determine if there is a need to further limit slope. Regardless, any proposals to limit anticipated community development activity should be incorporated into OC2040, the City's current comprehensive plan update.

There have been many instances within Oregon City and throughout the State of Oregon where site specific investigations have identified landslides not mapped by DOGAMI or determined mapped landslides are safe to build upon due to age (prehistoric), type of landslide (rock or debris flow slides), or shallow landslides that can be mitigated to allow safe construction and infrastructure development. These specific case studies are in Sherwood, Unincorporated Clackamas County, Unincorporated Washington County, and Estacada, and underscore the importance of on-the-ground field assessment. More information on these case studies is at Attachment 1.

The City has built-in opportunities to encourage and require robust geologic hazard analysis through its code and existing practices. Given its current application of industry standard slope and geologic hazard overlay zone, Oregon City can move forward in confidence with its community development goals.

Sincerely,



Roseann Johnson
Assistant Director of Government Affairs

Cc: Rocky Smith, Commissioner
Denyse McGriff, Commissioner
Frank O'Donnell, Commissioner

ATTACHMENT 1: Landslide Case Studies

Sherwood: A site in Sherwood is mapped as being underlain by a landslide (Figure 1). The geomorphic evidence for the mapping is very subtle with a slightly arcuate headscarp, minor flanks, and no discernable toe. The slide is mapped with a low level of confidence based on how clearly the morphology (headscarp, toe, flanks, internal scarps, etc.) of the landslide can be identified by the mapper. It is likely these geomorphic features along the flanks were caused by catastrophic flooding and the “scarp” by natural erosional processes. Subsurface explorations at the site did not encounter landslide debris; therefore, it should not have been mapped as such. The Sherwood High School is now built over this mapped landslide.

Beaver Lake: There are many landslides in the vicinity of Beaver Lake/Mompano Reservoir in Clackamas County. Mapping by Schlicker and Finlayson identify the area to the west of Beaver Lake as having “landslide topography” in their 1979 report *Geology and Geologic Hazards of northwestern Clackamas County, Oregon* (Figure 2). Schlicker and Finlayson describe landslide topography as “large areas of bedrock failure characterized by irregular topography, disrupted stratigraphy, overall anomalous moderate to shallow slope, and disrupted drainage pattern; deposit often fan shaped or with multiple coalescing fans covering area up to several square miles.”

Subsurface investigations performed in this area have encountered stiff, to very stiff silt and clay with characteristics consistent with deposition as a water saturated mudflow which either emanated from the toe of the primary slide mass up slope (to the north and northwest) or formed as an older deposit. The ancient debris flow material was underlain by undisturbed, fine grained Troutdale Formation material with laminar bedding planes preserved.

Older mudflow deposits may often be relatively stable once they consolidate to a stiff to very-stiff consistency because they do not have a distinct basal shear plane and have smaller driving forces due to momentum at time of failure. Based on the degree of consolidation and geomorphic degradation of the mudflow landform, it is estimated that this feature was pre-historic in age. The stiffness of the material, relatively gently sloping topography, and lack of a basal shear surface allowed construction of homes with standard spread footings with internal strip footings oriented perpendicular to the eastern slope. Placement of the homes were limited to gently sloping areas and the addition of fill was limited.

Parrett Mountain: Areas on Parrett Mountain in Washington County are underlain by prehistoric landslides that originated in the Columbia River Basalt Formation material (Figure 3). Development has been successful in this area since the bedrock landslides are deep and relatively stable.

Estacada: A subdivision in Estacada was situated on and above the headscarp of a prehistoric landslide mass (Figure 4). Due to the shallow nature of the slide, it was possible to develop the site with the construction of multiple keyways to improve shear strength and provide some dewatering. Slope gradient and landslide inventories are a good starting point for land use planning requirement; however, the importance of site-specific investigation cannot be understated. Avenues should remain with planning agencies to allow qualified professionals to refute existing mapping based on subsurface investigations.